

**FIRE MANAGEMENT PLAN**  
**DEVILS LAKE WETLAND MANAGEMENT DISTRICT**  
**DEVILS LAKE, NORTH DAKOTA**  
**1996**

Prepared by: \_\_\_\_\_ Date:  
Sup. Refuge Operations Specialist

Reviewed by: \_\_\_\_\_ Date:  
Asst. Project Leader Devils Lake WMD

Recommended by: \_\_\_\_\_ Date:  
Regional Fire Management Coordinator

Approved by: \_\_\_\_\_ Date:  
Regional Director

## **TABLE OF CONTENTS**

I. INTRODUCTION	1
II. COMPLIANCE WITH FWS POLICY	2
A. Purpose	2
B. Objectives	3
III. DESCRIPTION OF AREA AND FIRE EFFECTS	4
A. General Description	4
B. Topography and Soils	5
C. Climate	6
D. Vegetation	7
1. Grasslands	7
2. Wetlands	9
3. Endangered Plants	10
4. Noxious Plants	10
5. Trees	11
E. Reptiles, Fish, Amphibians	11
F. Mammals	12
G. Threatened and Endangered Species	12
H. Birds	13
I. Insects	14
J. Cultural Resources	14
K. Improvements	15
L. Air Quality/Smoke Management	16
M. Water Resources	17
N. Fire Environment and History	18
1. Fuel Types	18
2. Fire Behavior	20
3. Fire Occurrence/History	21
IV. DEVILS LAKE WMD FIRE MANAGEMENT POLICY AND OBJECTIVES	23
A. General	23
B. District Fire Management Goals	24
C. District Fire Management Objectives	24
V. FIRE MANAGEMENT STRATEGIES	25
VI. FIRE MANAGEMENT UNITS	28
VII. FIRE MANAGEMENT ORGANIZATION AND RESPONSIBILITIES	28
VIII. WILDFIRE PROGRAM	31
A. Fire Prevention	31
B. Fire Behavior Potential	31
C. Preparedness	31
D. Emergency Preparedness	34
Step Up Plan	35
E. Severity and Emergency Presuppression Funding	36

F. Detection	36
G. Fire Suppression	37
H. Mop-up Standards & Emergency Stabilization and Rehab	38
I. Records and Reports	39
IX. PRESCRIBED FIRE MANAGEMENT	40
A. Resource Management Prescribed Fire	40
B. Hazard Fuels Prescribed Fire	40
C. Planning	41
D. Training	42
E. Complexity	42
F. Monitoring and Evaluation	43
G. Prescribed Fire Impacts	44
H. Reporting and Documentation	45
X. WILDLAND FIRE USE FOR RESOURCE BENEFIT	46
XI. AIR QUALITY	46
XII. FIRE RESEARCH AND MONITORING	46
XIII. PUBLIC SAFETY	46
XIV. PUBLIC INFORMATION AND EDUCATION	47
XV. ARCHAEOLOGICAL/CULTURAL/HISTORIC RESOURCES	47
XVI. FIRE CRITIQUES AND PLAN REVIEW	47
XVII. CONSULTATION AND COORDINATION	48
XVIII. APPENDICES	
A. District Goals and Objectives	
B. Upland Management Environmental Assessment	
C. Vegetation Species List	
D. Reptile and Amphibian Species List	
E. Mammal Species List	
F. County Occurrence of Endangered, Threatened, and Candidate Species in the Devils Lake Wetland Management District	
G. Bird Species List	
H. North Dakota State Open Burning Regulations	
I. Area Map	
J. Agreements	
K. Dispatch Plan	
L. Fire Management Team Members	
M. Interagency Contacts	
N. Fire Season Readiness Evaluation	
O. References Cited	



## I. INTRODUCTION

Prior to the 20th century the role of fire in the northern plains had been one of continued restoration of the prairie ecosystem. Fire restored vigor to plant growth, increased seed production, released nutrients, and reduced accumulated litter. This included the area now designated as the Devils Lake Wetland Management District (DLWMD).

Since the early 20th century and the establishment of the District in 1963, many fires within the boundaries have been suppressed due to other work demands and adjacent habitat has been fragmented from agricultural practices. These activities have significantly reduced the role fire plays as a vital element of the prairie ecosystem in Devils Lake WMD. Since the 1970's there has been an accumulation of knowledge, and is being utilized and translated into management practices. Prescribe fire is used as an essential management practice of the mixed grass prairie and here in the Devils Lake WMD.

One of the primary objectives of the FWS in managing natural areas is the maintenance of ecosystems and their dynamic processes to ensure as nearly as possible a functional natural environment. As one of these natural processes fire constitutes one of the greatest influences on the ecosystem. In areas of tame grass plantings, fire is documented as removing litter, recycling nutrient and is a vital tool in suppressing undesirable grasses while enhancing desirable grasses and forbes. This document addresses that issue by providing direction for the fire management program at Devils Lake Wetland Management District. This plan will help achieve resource management objectives for the District as defined in the Devils Lake Wetland Management District Goal and Objectives statement (9/16/91)(Appendix A).

This plan addresses the use of prescribed fire as a management tool and therefore must meet NEPA/NHPA compliance. The original fire management plan and environmental assessment for the use of prescribed fire was submitted in 1984. A new fire management plan and environmental assessment are necessary to meet new policy requirements. An environmental assessment for Upland Management on Devils Lake Wetland Management District including the use of prescribed fire was approved on September 10, 1994. The environmental assessment can be found in Appendix B.

Authority and guidance for implementing this plan are found in:

1. Protection Act of September 20, 1922 (42 Stat.857;16 U.S.C. 594).
2. Economy Act of June 30, 1932.
3. Federal Property and Administrative Services Act of 1949 (40 U.S.C. 471 et seq.).
4. Reciprocal Fire Protection Act of May 27, 1955 (69 Stat. 66, 67; 42 U.S.C. 1856, 1856a and b).
5. National Wildlife Refuge System Administrative Act of 1966 as amended (80 Stat. 927; 16 U.S.C. 668d-668e).
6. Disaster Relief Act of May 22, 1974 (88 Stat. 143; 42 U.S.C.5121).

7. Federal Fire Prevention and Control Act of October 29, 1974 (88 Stat. 1535; 15 U.S.C. 2201).

8. Federal Grants and Cooperative Act of 1977 (Pub. L. 95-244, as amended by Pub. L. 97-258, September 13, 1982. 96 Stat. 1003 U.S.C. 6301-6308).

9. Wildfire Suppression Assistance Act of 1989, (Pub. L. 100-428, as amended by Pub. L. 101-11, April, 1989).

10. Department of the Interior Manual (620 DM-1), Wildland Fire Management (April 28, 1998).

11. United States Fish and Wildlife Service Wildland Fire Management Handbook (December 28, 2000).

12. United States Fish and Wildlife Service Refuge Manual, Chapter 6 RM 7, Fire Management (September 6, 1991).

## **II. COMPLIANCE WITH FWS POLICY**

### **A. Purpose**

The Devils Lake Wetland Management District consists of four administrative units including the Devils Lake Wetland Management District (DLWMD), Lake Alice National Wildlife Refuge, Sullys Hill National Game Preserve, and the Kellys Slough National Wildlife Refuge.

Devils Lake WMD was established administratively in 1963 as districts of land acquired through authorization and funding from Migratory Bird Hunting and Conservation Stamp Act, the Migratory Bird Conservation Act and the Consolidated Farm and Rural Development Act. These lands were established with the primary purposes of waterfowl production areas subject to all of the provisions of the Migratory Bird Conservation Act except the inviolate sanctuary provisions, for any other management purpose, for migratory birds, and for conservation purposes.

The Lake Alice National Wildlife Refuge was established in 1935 by the Migratory Bird Conservation Act for use as an inviolate sanctuary, or for any other management purpose, and for migratory birds.

Sullys Hill National Game Preserve was established in 1904 by Presidential Proclamation and Executive Order in 1921 as a big game preserve, refuge, and breeding grounds for wild animals and birds and made available to the public for recreational purposes.

The Kellys Slough National Wildlife Refuge was established in 1936 and 1941 by Executive Orders and by the Emergency Wetlands Resources Act of 1986 as a refuge and breeding ground for migratory and other wildlife, and for the conservation of wetlands in order to maintain the public benefits and fulfill international obligations contained in migratory bird treaties and conventions. The Kellys Slough Wildlife Project was established in 1990 under the North American Waterfowl Management Plan to create public/private partnerships focused on improving both public and private lands for the production and maintenance of waterfowl,

migratory birds and other wildlife.

Eleven Easement Refuges, primarily composed of flowage easements on private land were established by executive order with the intent of providing water impoundments and rest areas for waterfowl and other migratory birds. Areas in the District are: Rock Lake NWR, Brumba NWR, Billings Lake NWR, Snyder Lake NWR, Stump Lake NWR, Little Goose NWR, Wood Lake NWR, Lake Ardoch NWR, Pleasant Lake NWR, Lambs Lake NWR, Rose Lake NWR, Silver Lake NWR. Fire suppression on these easement refuges is the responsibility of the landowner and the local fire departments.

## **B. Objectives**

District goals and objectives include the enhancement and maintenance of waterfowl/wildlife resources through direct species management, habitat management, wetland/habitat preservation and restoration and environmental education. Complete copies of the District Goals and Objectives can be found in Appendix A. U.S. Fish and Wildlife Service policy requires that an approved Fire Management Plan must be in place for all of Service lands with burnable vegetation. Service Fire Management Plans must be consistent with firefighter and public safety, protection values, and land, natural, and cultural resource management plans, and must address public health issues. Fire Management Plans must also address all potential wildland fire occurrences and may include the full range of appropriate management responses. The responsible agency administrator must coordinate, review, and approve Fire Management Plans to ensure consistency with approved land management plans.

At present the District does not have an approved Master or Comprehensive Conservation Plan. Various operational plans for the District include objectives which pertain to fire management.

The District Safety Plan objectives are:

- provide safe working conditions for employees
- provide a safe environment for the visiting public
- protect and ensure safety of government equipment
- define safety related responsibilities of station personnel
- promote a safety attitude

The Fire Management Plan will provide direction to accomplish safety objectives during wildfire suppression actions and prescribed fire activities.

The 1994 Environmental Assessment for Upland Management on Devils Lake Wetland Management District addresses the use of prescribed fire as one of the management tools which is used to "rejuvenate dense nesting cover (DNC) and manipulate plant communities within native and tame grasslands, and to reduce wildfire danger by removing buildup of heavy fuels adjacent to values at risk from wildfire."

## **III. DESCRIPTION OF AREA AND FIRE EFFECTS**

### **A. General Description**

The Devils Lake WMD presently manages 201 waterfowl production areas (WPA's) totaling 45,738 acres and 10 wildlife development areas (WDA's) totaling 2,547 acres within the eight counties. WDA's are tracts of land that were purchased by the Bureau of Reclamation as mitigation for wetland losses during the construction of the Garrison Diversion Project. These tracts of land are managed the same as WPA's. Additionally, Lake Alice NWR contains 12,179 contiguous acres, Sullys Hill NGP with 1,674 acres, and Kellys Slough with 1,620 acres; collectively, the district has management responsibilities on more than 63,758 acres of fee title land.

The District is located in northeastern North Dakota within the famed Prairie Pothole Region. This heavily glaciated zone has a variety of glacial land forms, among the most important of which are the various shallow wetlands and prairie lakes. The Agassiz Lake plain, often called the Red River Valley, is actually an old lake plain and typically has low relief. In Pembina County, the Pembina Escarpment marks the boundary between the Lake Agassiz Basin and the Drift Prairie. The Drift Prairie is characterized by low rounded hills, numerous closed basins of various sizes, and scattered intermittent coulees.

The District includes prairie communities with various types of native grasslands, tame grass plantings riparian areas, and scattered woodland thickets. Woodland or forest communities exist along the Sheyenne River and the Red River of the North. Sullys Hill NGP and an area in Cavalier and Pembina Counties are the only contiguous areas of eastern deciduous trees and shrubs located where moisture conditions and soils allow for their growth. Other dominant features in the District include wetland areas with a variety of aquatic plants, which are correlated with such factors as water permanence, water depth, salinity and land use. Dense stands of cattail may dominate many of these sites depending on water condition. Agricultural communities are predominant throughout the District and include croplands, haylands, grasslands, shelterbelts, tree plantings, and large areas of Conservation Reserve Program (CRP). CRP is a farm program which restores highly erodible farmland back to grassland and cannot be grazed, hayed, or farmed. CRP areas have heavy fine fuel loadings and are a concern for fire suppression agencies.

## B. Topography and Soils

The District is spread out over two distinct physiographic regions. Elevation varies from 800 - 1,650 feet. The soils are derived from parent materials which include glaciolacustrine sediments, early Wisconsin glacial drift, and late Wisconsin glacial drift (loess).

The eastern portion of the District is located in the Red River Valley physiographic region. This area, characterized by flat, intensely farmed land was once the bed of Glacial Lake Agassiz. The soils are moderately well drained. Risk from wildfires or prescribed fires escaping refuge lands is low due to barriers created by intensive farming on private land. Access for fire suppression equipment is generally not a problem due to flat topography and numerous section line roads and trails.

The Glaciated Drift Plain covers the majority of the land within the District. This glaciated area, also known as the prairie pothole drift prairie, is characterized by gently rolling topography with numerous wetlands ranging from one-tenth acre to several hundred acres. Soils are silty loams and clay that are moderately well drained with areas of poorly drained soils. The meandering



and wooded Sheyenne River is located in this area of the District. The river valleys have numerous draws with narrow, steep slopes. Most of the area is cropland; small grains, oil seed production, edible beans, and corn. Risk of wildfires or prescribed fires escaping refuge lands is low to moderate. Intensive farming and grazing on adjacent lands create barriers to fire spread during portions of the year. Access is fair to good for light engines. Wetlands can pose safety problems due to the combination of getting stuck amidst heavy fuel concentrations. Access roads and trails are generally available.

Soil erosion resulting from suppression or prescribed fire actions is generally not a problem anywhere in the District. Occasionally local cooperators use disc lines as a fire suppression tactic. Disc lines on District land for suppression purposes are not recommended due to noxious weed invasion and soil erosion on slopes.

### C. Climate

The continental climate of the District is characterized by cold winters and hot summers, with rapid fluctuations of temperatures. The cool, dry, subhumid climate has an annual precipitation of 16 to 20 inches. Precipitation is normally heaviest in late spring and early summer, peaking in June. The average seasonal snowfall varies from 30-35 inches. The coldest temperatures vary from -40 F to -45 F to summertime highs up to 112 F. Intense thunderstorms occur frequently in summer. In the winter, snow and high winds bring blizzard conditions to the area. The frost free season generally runs from May 20 - September 15. January is the coldest month and July is the warmest. The prevailing wind flow is from the northwest with an average daily speed of 10 mph. Winds are usually sustained strong breezes rather than occasional gales. Wind speeds are usually highest during the afternoon and lowest at night. Winds of 25-30 mph often last for six hours and have been recorded for as long as 15 hours. Windspeeds of more than 30 mph have been recorded to last longer than six hours, sustained gusts of 35-50 mph are not uncommon.

The District hopes to have access in the near future to a Bureau of Indian Affairs automated weather station located at Sullys Hill NGP. The weather station has the ability to calculate fuel moistures and can be linked to the Weather Information Management System (WIMS) in order to produce daily fire weather predictions. The District is a National Fire Danger Rating System (NFDRS) climate class 1 area (semiarid).

Green up of cool and warm season grasses is dependent on precipitation and soil moisture. Drought years often produce little or no green-up for the entire year. Year to year variations in green up and curing of grasses affect fire danger throughout the growing season.

### Long Term Mean Precipitation and Temperature- Devils Lake Wetland Management District

Month	mean precip "	mean temp F	veg. stage
Jan	.4	7	C
Feb	.4	10	C
Mar	.8	23	C
Apr	1.2	40	T
May	2.3	54	G

Jun	3.5	63	G
Jul	2.7	70	T
Aug	2.3	68	T
Sep	1.6	57	C
Oct	1.2	45	C
Nov	.8	26	C
Dec	.4	14	C
Annual	17.2	40	

C=cured, T=transition, G=green up

#### D. Vegetation

Comprehensive surveys of all units within the District have not been completed. General habitat inventories of Service lands have been completed, however species lists are not available at this time.

##### 1. Grasslands

One of the simplest and least expensive practices to improve and restore grasslands is prescribed burning. Selective suppression or promotion of a particular species depends on the date of the fire in relation to the phenology of the particular species (Higgins, Kruse, Piehl 1986). Large wildfires could have negative effects on certain grass species depending on the time of year and drought conditions. Prescribed fires, appropriately timed will be used to manage District grasslands. Research conducted on the Arrowwood Complex, North Dakota found a marked increase in species diversity after prescribed burning (Kirsch, Kruse 1972).

Grassland vegetation makes up approximately 50 percent of the 63,758 acres of Service owned lands in the Devils Lake WMD. Of these upland acres, approximately 70 percent is reseeded tame grass and forb species, 10 percent reseeded native grass species, and 15 percent is native grassland species.

Remnant native prairie tracts can still be found in the southwestern portion of the WMD to a degree that representative native biotic communities can be found. In the remaining portions of the WMD these native prairie tracts are scarce and isolated.

Native tracts can be classified as either tall grass prairie in the eastern portion and Red River Valley or mixed-grass prairie in the remaining portions of the District. The tall grass prairie is dominated by big bluestem, indiangrass, switchgrass, and prairie cordgrass. The mixed grass prairie is dominated by big and little bluestem, sideoats grama, green needle grass, needle and thread, western wheatgrass, and prairie June grass in the remaining portions of the WMD. Many of these tracts have been invaded by smooth brome grass, Kentucky bluegrass and quack grass along with broadleaf weed species.

Nearly all Service owned lands have been converted to cropland at some point in its history prior to the Service purchasing the land. In most cases the area was farmed long enough to destroy the seedbank of native plant species that existed. On some tracts, remnant native grasses can be found with the introduced exotic grasses that were planted.

There are a few WPA's and WDA's that contain seeded native grasses. Species that were planted include switchgrass, big bluestem, little bluestem, sideoats grama, western wheatgrass, and green needlegrass. In general, areas that were seeded in the 70's and early 80's have relatively poor stands of native grass. A lack of documentation does not allow a thorough investigation, however it is suspected that native seedings attempted during this period resulted in poor stands due to a variety of reasons. These include improper seeding methods that did not place seed at the proper depth and compaction, seed varieties that were not adapted to northern North Dakota, lack of management after seeding, and poor weather conditions following seeding. Many of the WDA's have been seeded to native grasses and have had successful establishment. Species planted are primarily switchgrass and big bluestem.

The majority of Service owned lands within the Devils Lake WMD have been seeded with dense nesting cover (DNC) composed of tall wheatgrass, intermediate wheatgrass, alfalfa, and sweetclover. These areas were generally seeded through the use of cooperative farmers who prepared the seedbed and seeded the grass in exchange for a portion of the crop or hay. Establishment of these stands have ranged from excellent to poor depending largely on the cooperator and/or the climatic conditions at the time of seeding. Some of these stands provide excellent nesting and winter cover. Many have declined in productivity due to the tendency of smooth brome to invade and predominate the stand and then to become sodbound without proper management. More recently, Service staff are seeding more of these tracts

Some areas are composed of tame grass or became go-back areas. They are primarily composed of smooth brome, quackgrass, Kentucky bluegrass, and alfalfa. These stands generally provide fair to poor nesting cover and little winter cover.

There are two primary ways to evaluate the condition of grasslands. One is range condition, which is based on the percentage of selected native plant species present at a given time as compared to the percentages that would be present under a climax range condition. The second is forage or vegetative condition, which is more commonly referred to as grassland vigor. This does not evaluate the grassland based on species composition, but rather the health of the grass species present. In general, both the range condition and vegetative condition of WPA's are in fair to poor condition based on the species present and the general grassland vigor. The primary reason the grasslands are not in better condition is lack of periodic treatment on these grasslands. A review of past management of Service lands indicates that treatment has been sporadic and most units have received from 5 to 15 years of rest.

Grassland species of the northern great plains evolved under periodic disturbance and defoliation from buffalo and fire. This periodic disturbance is what kept the grassland species healthy for thousands of years and is still needed to keep them healthy today. Introduced grass species evolved with periodic disturbance in their native regions. These disturbances can be imitated by the periodic use of haying, grazing, and prescribed burning.

## 2. Wetland Vegetation

Wetland or aquatic vegetation refers to those plants which have evolved to grow in anaerobic soils which are saturated for most of the growing season. Wetland vegetation is broken down into four major categories of plants, based on their growth form and the wetland zone they inhabit. These categories are free-floating, submergent, emergent, and amphibious.

Free-floating plants are those wetland plants which float at or beneath the surface of the water without being attached to the substrate. Common examples are duckweed, bladderwort, and coontail.

Submergent wetland plants are those which are anchored to the substrate, but do not emerge above the surface of the water; however, some may have floating leaves. Examples are pondweed, watermilfoil, waterweed, and widgeongrass.

Emergent wetland plants are also anchored to the substrate like submergent plants; however, the foliage of these plants grow partially or entirely above the surface of the water. Arrowhead, cattail, common reed, and bullrush are all common examples of emergent wetland plants.

Amphibious is the final group of wetland plants. This term refers to wetland plants that can grow as either a submergent or an emergent. Commonly, water levels drop, leaving these plants growing in a temporarily dry site. Some of the common amphibious aquatic plants include yellow water-crowfoot, pepperwort, and water smartweed.

Wetland vegetation covers approximately 45 percent of the acres managed by the Service within the WMD. All four categories of wetland plants exist within the WMD on both private and public lands. Aquatic plants grow in four classes of wetlands: temporary, seasonal, semipermanent, and permanent wetlands. It is not uncommon for a single wetland to have all four categories of aquatic vegetation. Permanent wetlands contain a deep water zone which does not normally support aquatic vegetation.

### 3. Endangered Plants

There are no known Federally listed endangered plants occurring in the WMD. The Western prairie fringed orchid (threatened) and elk sedge (candidate 2) are the only Federally listed plant species that may be present. To date, however, there are no known plants occurring on Service lands within the Devils Lake WMD. In other areas where the Western prairie fringed orchid has been found, they are usually enhanced by periodic prescribed burning. The burning is used to reduce mulch buildup and control the increase of nonnative plant species. It is not known whether carefully timed short-duration grazing will have a similar beneficial effect on the Western prairie fringed orchid, but this is still being evaluated.

### 4. Noxious Plants

There are many noxious plant species that exist within the Devils Lake WMD. Noxious weeds of major concern are leafy spurge, Canada thistle, musk thistle, and Absinth wormwood. These species often compete with and have a very negative effect on native plant species. The control of noxious plants is important to benefit native plant communities and is required by State law. Noxious weeds also have negative impacts on private croplands and grasslands. Purple loosestrife has recently been documented as occurring in the District. Surveys are currently being conducted for purple loosesstrife.

### 5. Trees

Riparian woodlands, planted shelter belts, and single trees are scattered throughout the District. The majority of the tree areas are associated with river valleys and Sullys Hill NGP. Trees common and or native to the area are bur oak, cottonwood, boxelder, basswood, green ash, and American elm. Bur oak regeneration is declining at Sullys Hill NGP, due in part to fire exclusion. In parts of the Devils Lake WMD Russian olive is considered an invader species on grassland sites due to lack of fire. Limited control of Russian olive trees with prescribed fire has been effective at Devils Lake Wetland Management District if the trees are very young.

#### E. Reptiles, Fish, and Amphibians

Several species of reptiles and amphibians have been documented on the District but comprehensive surveys of all units have not been done. There are approximately 6 species of reptiles and amphibians that exist within eastern North Dakota and 11 species that exist throughout North Dakota (Wheeler and Wheeler 1966).

There are four snakes, four frogs, three toads, two salamanders and two turtles that are assumed to be found in the Devils Lake WMD. No federal or state threatened species have been observed. The relatively cold climate and low rainfall that occurs in North Dakota limits the number and diversity of reptiles and amphibians found.

The Devils Lake WMD is found within the drainages of the Red River of the North, the Sheyenne River, and the Devils Lake basin. Within these three drainages, 81 species of fish have been documented. The majority of these species occur in perennial streams and deeper ponds and lakes of the WMD. No known fishery occurs within Service owned lands. During high water events, fish may have the ability to migrate from Devils Lake into Lake Alice NWR and from a tributary of the Red River into Lake Ardoch NWR and Kellys Slough NWR. The fishery associated with the WMD would be classified as a warm-water fishery with low numbers of game fish and high numbers of minnows. Due to the shallow nature and high salinity of the closed basins on Service owned lands within the WMD, they have a high probability of fish winterkill. The only commonly observed species within these basins is the brook stickleback (Culaea inconstans) (Owen, 1981)

The only state threatened species is the pallid sturgeon (Scaphirhynchus albus). No suitable habitat is found on Service lands. One rare state species found on the Kellys Slough NWR is the banded killifish (Fundulus diaphanus). No federally listed fish species have been observed.

#### F. Mammals

Comprehensive inventories of mammal species have not been completed for all units in the District. The District's upland habitats support healthy populations of white-tailed deer along with coyote, fox, raccoon, skunk, muskrat and beaver. Several species of small mammals are also common, including; deer mice, ground squirrels, voles and shrews.

Generally, the direct impacts of fire on wildlife include disturbance or infrequent mortality of individuals or groups of individuals, particularly slow moving and or sedentary species. The District's larger mammals (deer, coyote, fox) will generally move away from fire. However the availability of suitable adjacent habitat is important for local populations. This factor is particularly important in the District where FWS units are small and surrounded by intensively farmed cropland. Extensive fall prescribed burning is generally not conducted in the District for this reason.

Fire in the mixed grass prairie has shown to generally favor deer and other mammals (Coppock and Detling, Herman and Wright, and others). Information concerning the effects of fire on wildlife can be reviewed in The Effects of Fire in the Northern Great Plains, prepared by Higgins, Kruse, and Piehl.

The staff at Devils Lake Wetland Management District realizes that District ecosystems are not complete. Uncontrolled wildfire has a potential for negative impacts on wildlife, conversely prescribed fire under the correct prescriptions can be used as a tool to improve habitat. The District has been managing habitat with prescribed fire since 1979 (District files).

#### G. Threatened, Endangered, and Candidate Species

Devils Lake Wetland Management District contains a number of threatened, endangered, and candidate species. The District will implement its fire management program within the constraints of the Endangered Species Act of 1973, as amended, and will take appropriate action to identify and protect from adverse effects any rare, threatened, or endangered species located within the District. US Fish and Wildlife Service policy requires that State threatened and endangered species and Federal candidate species will be incorporated into any planning activities. Appendix F. contains a list of Endangered, Threatened, and Candidate Species Occurring in the Devils Lake Wetland Management District by county.

#### Threatened, Endangered, Candidate Species Found in Devils Lake Wetland Management District

Bald Eagle ( <u>Haliaeetus leucocephalus</u> )	threatened
Peregrine falcon ( <u>Falco peregrinus</u> )	endangered
Whooping crane ( <u>Grus americana</u> )	endangered
Piping plover ( <u>Charadrius melodus</u> )	threatened
Black tern ( <u>Chlidonias niger</u> )	candidate
Ferruginous hawk ( <u>Buteo regalis</u> )	candidate
Baird's sparrow ( <u>Ammodramus bairdii</u> )	candidate
Loggerhead shrike ( <u>Lanius ludovicianus</u> )	candidate
Dakota skipper ( <u>Hesperia dacotae</u> )	candidate
Lynx ( <u>Felis lynx canadensis</u> )	candidate
Gray Wolf ( <u>Canis lupus</u> )	endangered
Regal Fritillary ( <u>Speyeria idalia</u> )	candidate
Tawny Crescent ( <u>Phyciodes batesi</u> )	candidate
Elk Sedge ( <u>Carex garberi</u> )	candidate

Fire is a natural and essential part of the District's ecosystems. Native wildlife evolved with fire and have developed means of tolerating and/or benefitting from fires. However the sensitive nature of some of the above species require that their habitats be protected from large wildfires especially where adjacent habitat is lacking. Prescribed burning in areas where threatened, endangered, and candidate species exist will be conducted such that small to medium size burns (10-300 acres) can increase local habitat diversity by creating a mosaic of habitats and increased habitat interspersation and edge.

Studies conducted at Lostwood NWR, North Dakota found that piping plover nesting success increased as a response to prescribed burning on beaches (Smith, Murphy, Michaelson, Viehl 1993). Increases were attributed to the reduction of live and residual vegetation.

Baird's sparrows have been observed in the southwestern and western Coteau portions of the Devils Lake WMD and on Lake Alice NWR. Baird's sparrows nest in extensive idle or lightly grazed mixed grass prairie in the prairie pothole region. Baird's sparrow populations increased on areas treated with at least three prescribed burns over a 12 year period at Lostwood NWR, North Dakota (K. Smith, personal conversation).

#### H. Birds

Two hundred and eighty species of birds have been observed on the District. Of these, approximately 120 species are known to nest on the District. Spring and fall migrations find spectacular numbers of waterfowl passing through the area and the District is an important stop for many on the journey north or south. Numbers of upland birds are cyclic but populations are normally present. Appendix G. is a species list of birds observed on the District.

Bird species evolving with fire may show fire adapted behavior and responses, whereas other species exposed infrequently to fire in their evolutionary history may be severely inhibited by it (Best 1979). Research conducted in the Arrowwood District from 1969-1971 concluded a greater variety of nesting bird species was found on burned areas, duck and sharptail grouse production was higher on burned areas, hatching success of ducks was higher on burned areas, and there was a marked increase in plant variety after burning (Kirsch and Kruse 1972). Another study conducted on the Arrowwood District concluded duck nesting success was significantly greater in fall burned plots than in spring burned plots for all species (duck) and years combined. Results suggested that vegetation structure and duck nesting response to spring and fall burns became similar after the third post fire growing season (Higgins 1986).

#### I. Insects

Insect life and range of occurrence of insects are not well documented at the Devils Lake Wetland Management District. Fire causes an immediate decrease in insect populations (except ants, other underground species, and flying insects), followed by a gradual increase in numbers as the vegetation recovers. The insects eventually reach a population level higher than adjacent areas, then decline to near present levels as vegetation and soil litter stabilize (Higgins, Kruse, and Piehl 1986).

#### J. Cultural Resources

Fire management activities within the District will be implemented in accordance with the regulations and directions governing the protection of cultural resources as outlined in Departmental Manual Part 519 (519M), Code of Federal Regulations (36 CFR 800), the Archeological Resources Protection Act of 1979, and the Archeology and Historic Preservation Act of 1974. All fire management activities will be in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended.

The only known cultural or archaeological resources within the WMD are located on Sullys Hill NGP. These have all been documented and recorded. There are no other known cultural or archaeological resources on Service lands within the WMD. The probability that significant

cultural resources are present on some of the thousands of acres of Service lands is fair. The Regional Archeologist will be consulted during the planning phase of any proposed project and will determine the need for a cultural resource inventory in consultation with the North Dakota Historic Preservation Office.

Heat from grassland fires rarely penetrates more than a centimeter into the soil. Impacts of grassland fires on artifacts and other materials in subsurface settings will be negligible even if they are buried only a centimeter or less below the ground surface (Wright and Bailey, Vogl). Research conducted by Saylor, Seablom, and Ahler at Knife River Indian Villages National Historic Site in North Dakota indicated that fire related impacts to surface exposed artifacts will be significant, depending on fire conditions and artifact type and size. Damage includes scorching, fracturing, charring, and spalling. Secondary impacts are created by erosion and vandalism. The severity of fire related effects can be controlled and diminished to some degree by controlling the fireline intensity at the time of the burn.

Files and records of cultural resources should be consulted by the area's manager when planning prescribed burns and preparedness activities. The potential for adverse impacts to cultural resources will be evaluated prior to prescribed burning and in the selection of fire suppression strategies during wildfires. Protective blackline may be used around sensitive sites.

Fire suppression and prescribed fire actions involve construction of blackline and scratchline, use of swatters, and direct attack with engines, all primarily in fine fuels. Ground disturbance is minimal and not likely to adversely effect cultural resources.

#### K. Improvements

Wildfire damage to improvements on and off Service land is a primary concern. While Service owned developments can generally be protected from fire damage, dispersed improvements, particularly fences, dikes and dams, predator exclosure fences and adjacent private property is likely to be damaged by wild fires. Ninety five percent of the land surrounding the Devils Lake WMD is under private ownership. Private improvements in these areas are numerous and are valued in the tens of millions of dollars. Crop, pastures, and haylands can have private resource values in excess of \$400.00 per acre, with thousands of acres in potential threat from wildfire originating on the District lands, especially during the late summer/early fall cured stage of crops and grasslands. Throughout the District 70 to 90% of the upland acres are planted to small grain or row crops with small grain making up 80% plus of the crops. When these crops will carry fire the potential impact from a wild fire is multiplied six fold. During the fall harvest a great deal of agricultural equipment is parked in crop fields and temporary work sites across the District. The value of one harvester can exceed \$350,000.

Within the District a majority of private home and structures are widely spaced across the landscape. The density is less than one developed site per 2 square miles. The areas of exception are within city limits and eastern Grand Forks county. Eastern Grand Forks county is experiencing urban sprawl due to the severe flooding in 1997. The 1997 Red River Valley flood caused many home owners to seek less flood prone home sites 10 to 20 miles outside of the city of Grand Forks.



In eastern Grand Forks county occupied home sites can exceed a density of 10 per square mile. These concentrations of home sites are located in areas of low soil productivity and thus the typical land uses are pasture, undeveloped grasslands, and CRP.

The majority of District structures are found at the headquarters, Lake Alice NWR, and Sully's Hill NGP, miles of fences and other improvements are located throughout the 8-county WMD. The dispersed nature of the WMD creates many situations where escaped prescribed fires or wildfires could damage adjacent private structures, equipment, and pasture/hay/cropland. Wildfire damage to other public property can occur to wooden utility poles and utility junction boxes which are located on or adjacent to Service lands. Private landowners generally have a low tolerance for wildfire, but the use of prescribed fire is fairly well accepted as a habitat management tool in most areas of the District. The District relies heavily on volunteer fire protection districts (RFD's) for suppression at remote WPA's, and also utilizes these resources to assist with wildland fire suppression on the Refuge. RFD's and city VFD's are relied upon to suppress structural fires on the District.

#### L. Air Quality/Smoke Management

The management of smoke is incorporated into the planning of prescribed fires, and to the extent possible, in suppression of wildfires. Sensitive areas are identified and precautions are taken to safeguard visitors and local residents. Smoke dispersal is a consideration in determining whether or not a prescribed burn is within prescription. Generally the fine grass fuels and small burn size (80-600 acres) generate low volumes of smoke for short duration (4-5 hours).

Devils Lake Wetland Management District fire management activities which result in the discharge of pollutants (smoke, carbon monoxide, particulates, and other pollutants from fires) are subject to and must comply with all applicable Federal, State, and local air pollution control requirements as specified by Section 118 of the Clean Air Act, as amended 1990.

The North Dakota State Department of Health, Environmental Health Section implements the requirements of the Clean Air Act. Permits to open burn are required under the authority of the North Dakota Air Pollution Control Rules (Article 33-15, North Dakota Administrative Code). Written requests are submitted by the District to the Department of Environmental Health for each planned prescribed burn. Requests must identify acres, location, and purpose of the burn. The State grants approval in letter form and also notifies local and district Environmental Health Practitioners. Appendix H. is a copy of the state of North Dakota Conditions/Restrictions Applicable to an Approval to Open Burn. Smoke complaints are also investigated by the State Department of Environmental Health. To date the State has received no complaints concerning smoke from Devils Lake Wetland Management District prescribed fires or wildfires. District personnel also take special care to notify neighbors, fire departments, and local law enforcement agencies on burn day. These actions are specific requirements of individual burn plans.

Smoke from wildfires and prescribed fires is a recognized health concern for firefighters. Prescribed burn bosses and wildfire incident commanders must plan to minimize exposure to

heavy smoke by incorporating the recommendations outlined in the publication Health Hazards of Smoke (Sharkey 1997). The use of respirators is not recommended.

## M. Water Resources

The wetlands in Devils Lake Wetland Management District are extremely productive and very attractive to migratory waterfowl and resident wildlife. They serve as breeding and nesting areas for many migratory birds and as wintering habitat for many species of resident wildlife. Approximately 28,000 acres of wetlands exist on Federal lands, most of which are potentially burnable at one time or another. Many of the prescribed burns conducted in the District are adjacent to water resources; some, such as cattail reduction burns, take place right over water or ice. Post fire erosion and wind born ash deposition impacting water resources is not a concern for the type and scale of burns conducted on the District. Burn size is generally small (average 170 acres) and grass fuels do not produce heavy volumes of ash as compared to forest fuels. Supporting documentation regarding fire effects on water resources can be found in Effects of Fire on Water: A State of the Knowledge Review (1979).

## N. District Fire Environment and History

The Complex totals approximately 63,404 acres of fee title lands. Approximately 33% of this land, or 20,697 acres is comprised of a variety of seasonal and permanent wetlands. Most of these wetlands contain heavy fuel loadings of emergent vegetation including bulrush, cattail and other vegetation that when cured, will support a fire even over the top of the water. During dry years, many of these areas will completely dry up, burning with moderate to high fire behavior characteristics. Due to these factors, the total estimated burnable acreage for the Complex is 53,893 acres, or 85% of the total Complex acreage.

### **1. Fuel Types**

Fuel models found within the Devils Lake Complex are varied and include all four fuel groups (grass, shrub, timber and slash). Fuel modeling in wildland fire management has traditionally been accomplished using two fire behavior fuel model definition systems. The National Fire Danger Rating System (NFDRS) is comprised of 20 alphabetical models including A,L,S,C,T,N (grass models), B,O,F,Q,D (shrub models), H,R,U,P,E,G (timber models) and K,J,I (slash models). This modeling system is used in the NFDRS system to predict fire danger indices, and is also utilized in the FIREBASE system, the Service's computer based fire management budgetary system used to allocate wildland fire management resources. NFDRS fuel models are listed below for Complex lands.

A second system of wildland fire management fuel models has been developed for use in predicting fire behavior. This fuel model system is know as the Northern Forest Fire Laboratory or NFFL system. This fuel model system is also known as the FBO, or Fire Behavior Officer system. The NFFL or FBO system is used in running the BEHAVE computer program for estimating fire behavior, and is the fuel model used in Service prescribed fire plans. The NFFL fuel model system contains 13 fuel models numbered from one to 13, and broken into the same four fuel groups as the NFDRS models.

NFFL fuel models are listed below concurrently with NFDRS models, and a listing of these models can be found in the National Wildfire Coordinating Group (NWCG) General Technical Report #INT-122, "Aids to Determining Fuel Models For Estimating Fire Behavior" (Anderson 1982). Page 18 of this publication also contains a comparison table showing NFDRS and NFFL fuel models and their relationships. A copy of this technical report has been included in Appendix ##. Here is a breakdown of these groups, individual fuel models and their occurrence and characteristics on Complex lands.

**NFDRS Fuel Model L** (western annual/perennial grasslands; NFFL fuel model 1) Approximately 24,770 acres of the total burnable acres fit fuel model L. This model includes a variety of grasslands including savannas, cured small grain cropland, stubble, short to medium height grasses and grass-shrub combinations. Perennial and annual grasses are the primary fuel, loadings are heavier than model A (annual grasses), and the fuel quantity is more stable from year to year. Decomposition rates of grass fuels are slow which leads to heavier than natural fuel loadings if fire is absent. Invading woody plants are mixed in the grasses throughout 15-35% of the units. This fuel model also fits much of the adjacent private lands including cured cropland, native prairie, grazed pastures and hayland. The 8-county WMD district also includes over 20,438,149 acres of cropland (1997 USDA Data).

**NFDRS Fuel Model N** (tall grass; NFFL fuel model 3): Approximately 27,373 acres of the Complex fit fuel model N. Described as tall grass, perennial grasses, and or marshland grasses approximately 3 feet tall, one third of the aerial portion of the plant is usually dead. Invading woody plants are mixed with these fuels throughout 10-25% of many of the upland areas. Areas of the Complex fitting this fuel model include heavy tall grass vegetation found in seasonal basins, meadows, marshes (bullrush and cattail) and areas planted into dense nesting cover (DNC). This fuel model also fits adjacent private lands including some uncut hay fields, wetland basins and marsh vegetation, and areas enrolled in the Conservation Reserve Program (CRP). CRP is a major concern for fire suppression agencies in this area. CRP acres have risen in recent years, and currently totals more than 608,646 acres in the 8-county WMD ( Benson County - 52,458, Cavalier County - 50,642, Grand Forks County - 93,574, Nelson County - 126,509, Ramsey County - 74,564, Pembina County - 34,357, Towner County - 65,818, Walsh County - 110,724, {2001 NRCS data}).

**NFDRS Fuel Model E/R** (hardwood leaf litter; NFFL fuel model 8/9): Approximately 1000 acres of the Complex fit this fuel model. 700 acres of the oak/mixed hardwood occur on the Sullys hill NGP, along with riparian woodlands, wooded draws, and planted shelter belts. These areas usually are fairly fire resistant during the summer growing season. Many of these areas are also in terrain and vegetation that greatly limits access by fire equipment, inaccessibility often require indirect attack methods to be used.

**NFDRS Fuel Model G** (timber and litter with heavy dead and downed fuels present; NFFL fuel model 10): 150 acres of the Complex fit this model and are composed of a oak/mixed hardwood forest with high to extreme loadings of dead and downed fuels in the 100 and 1000 hour size category. This fuel loading has been created by 80 plus years of fire exclusion and 3 major wind events ( 70 to 110 mph winds)during the years 1999 and 2000. This model is found only Sullys Hill NGP and is intermixed with fuel model E areas. Suppression of this model is difficult and requires an indirect attack under most circumstances.

**NFDRS Fuel Model F** (intermediate brush, NFFL fuel models 5 and 6): The Complex contains approximately 600 acres of brushlands that fit these fuel models. Fuels include mixed hardwood brush, snowberry, and willow encroachment areas found in former meadows and along riparian zones. Fuel model F (NFFL model 6) is represented by areas of willow encroachment and snowberry due to the flammable characteristics of this fuel. NFFL fuel model 5 best fits the remainder of this shrub type, including the young aspen and mixed hardwood brush areas. There is no NFDRS fuel model that corresponds directly to NFFL model 5, but NFDRS models F can be used as a second choice.

## **2. Fire Behavior**

a. Fuel Model L/Fire Behavior Model 1: shortgrass. Fire spread governed by the fine, very porous and continuous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through the cured and nearly cured material. Fuel loading consists of fine dead fuels only, but average 1.5-2 tons per acre. Fire behavior is directly related to the fine fuel moisture and wind speed. Spread rates with moderate to high wind speeds can reach 255 chains per hour or 280 feet per minute, with flame lengths exceeding seven feet. Spot fires are generally not produced because fuels are consumed too quickly and thoroughly. Fire fronts tend to become irregular as topography, fuel loads, winds, and/or natural barriers speed up or slow movements. Resistance to control is low to moderate, depending on wind speed. This model also does a good job at describing fire in cures small grain crops.

b. Fuel Model N/Fire Behavior Model 3 tallgrass. This model displays high rates of spread under the influence of wind. Wind may drive fire into the upper heights of the grass and across standing water. Fuel loading consists of fine and coarse dead fuels, averaging 3 tons per acre. Spread rates with moderate to high wind speeds can reach 200 chains per hour, with flame lengths exceeding 20 feet. Short range spotting (up to 500 feet) is common. Resistance to control is very high to extreme.

c. Fuel Model E/Fire Behavior Model 9 hardwood litter. This model displays moderate to low fire intensity. Fires are carried by dead, loosely compacted leaves. Concentrations of dead downed woody

material will contribute to more intense burning as well as moderate spotting. Fuel loads consist of leaves, needles, and small stems and branches, 3.5 tons per acre. Spread rates are generally slow, 7.5 chains per hour. Flame lengths average 2-3 feet. Resistance to control is low except during drought conditions.

### 3. Fire Occurrence/History

Wildfire is one of the primary natural forces which created native prairie. Historic records describe huge prairie fires started by lightning or humans. Fires burned millions of acres as there were few natural fuel breaks and no suppression. Wright, and others (1978) believe that fire frequency in the prairie grasslands is on the order of 5-10 years. Other studies indicate that a longer frequency of 10-20 years may be more accurate. Very little local data exists for Devils Lake Wetland Management District.

Fire records of the District exist from 1976 to present, however detailed information is lacking and difficult to obtain. Past records indicate that the area usually has a high number of wildfires annually. We are confident that many more wildfires have occurred on FWS lands that are unreported. Devils Lake Wetland Management District has an average of 4 wildfires per year; a total of 80 wildfires have been recorded from 1976-1995. Research indicates lightning-caused fires are less frequent in the eastern portion of North Dakota (Higgins 1984). One fire was the result of FWS escaped prescribed burn. The majority of the wildfires are human caused (vehicles, arson and negligence). While some are accidental, many are also deliberately set due to the high resentment towards the FWS. Equipment, roadside burning and agricultural field burning account for the majority of human-caused starts. The agricultural field burning season occurs during spring and fall, and is widespread throughout the District. Private landowners are not subject to the same burning regulations as government agencies. Farm fields are often ignited and left unattended, sometimes resulting in wildfires. All fires on record were controlled during the first burning period. Many of the wildfires were suppressed with the help of volunteer fire department resources or solely by volunteer fire departments.

#### Devils Lake Wetland Management District FIRE HISTORY 1976-1995

Year	Number of Wildfires	Acres
1976	3	310
1977	2	120
1978*	2*	534*
1979	4	88
1980	5	660
1981	5	841
1982	0	0
1983	9	531
1984	6	524
1985	5	590
1986	1	58
1987	11	1,551
1988	7	855
1989	2	739

1990	8	638	
1991	0	0	
1992	3	146	
1993	4	516	
1994	6	708	
1995	1	60	
1996	11		1,107
1997	7		261
1998	13		1,667.4
1999	44		3,252.00
2000	8		141
TOTAL	163	15,897	

\* Past records refer to “numerous wildfires occurred on WPA’s this year burning approximately 534 acres.”

The following is some general information on North Dakota Fire History, obtained from the annual North Dakota Office of Fire Marshal Wildland Fire Report. The information below is for all wildfires occurring within the 8 county area in which the Devils Lake Wetland Management District is located. Please note that these are only the fires that have been reported. It is believed that many more fires occurred but were not reported. The cause of the majority of these fires were coded as “Inadequate Control of Open Fires” and mainly consisted of burning roadsides and cropland stubble in the spring and fall seasons.

Wildfire Occurrence for 8 County Area; Benson, Cavalier, Grand Forks, Nelson, Pembina, Ramsey, Towner, and Walsh:

Year	# of fires	largest fire (acres)
1991	22	41
1992	55	300
1993	113	125
1994	128	405

1991-1994 Fire Distribution by Month for the 8 County Area:

Jan-Feb	Mar-Apr	May-June	July-Aug	Sept-Oct	Nov-Dec.
1%	30%	24%	9%	29%	6%

The four-year average for the 8 county area is 80 fires per year. The seven year average (1987-1993) for the entire state is 460 fires per year. The 8 county area accounts for 17% of all

North Dakota wildfires. The 8 county area is approximately 6,376,764 acres which is approximately 14% of the total land area of North Dakota. The fire average for the 8 county area that includes the District is slightly less than the statewide average.

#### **IV. DEVILS LAKE WETLAND MANAGEMENT DISTRICT FIRE MANAGEMENT POLICY AND OBJECTIVES**

##### **A. General**

The following considerations influenced the development of the District's fire management goals and objectives. The previous sections of this plan have established that:

1. Fire is an essential natural part of the District's native biotic communities.
2. Uncontrolled wildfire has the potential for negative impacts on and off District units.
3. Positive or negative effects of prescribed fire on vegetation, wildlife, and cultural resources depend on burning conditions and plant phenology.
4. Rapid rates of spread, potentially long response times, and the large number of individual land units (WPA's) pose suppression problems and increase the likelihood of escape onto adjacent private lands.
5. Use of the "minimum tool" concept to minimize environmental damage is important throughout the District.

##### **B. District Fire Management Goals**

1. Protect life, property, and other resources from wildfire.
2. Use prescribed fire as a tool to accomplish District habitat management objectives.

##### **C. District Fire Management Objectives**

1. Safely suppress all wildfires using strategies and tactics appropriate to safety considerations and values at risk.
2. Minimize the impact and cost of fire suppression.
3. Use prescribed fire for hazardous fuel reduction to the fullest extent possible within or near District development zones, wildfire sensitive resources, and boundary areas to reduce the risk from wildfire damage. Treat 2,000 acres annually.
4. Educate the public regarding the role of prescribed fire within the District.
5. Use prescribed fire to restore and perpetuate native and tame grasslands, by maintaining a diversity of healthy plant communities. Treat 3,000 acres annually.

## **V. FIRE MANAGEMENT STRATEGIES**

The following will be employed to meet fire management objectives.

A. Using the appropriate management response concept, suppress all wildfires in a safe and cost effective manner consistent with resources and values at risk. Minimum impact strategies and tactics will be used when possible. The following table is intended to demonstrate a range of options available for consideration by the Incident Commander.



### Appropriate Management Response

SITUATION	STRATEGY	TACTIC
1. Wildland fire on Refuge lands which does not threaten life, natural or cultural resources or property values.	Restrict the fire within defined boundaries established either prior to the fire or during the fire.	1. Holding at natural and man-made barriers. 2. Burning out. 3. Observe and patrol.
1. Wildland fire on Service property with low values to be protected. 2. Wildfire burning on to Service lands. 3. Escaped prescribed fire entering another unit to be burned.	Take suppression action, as needed, which can reasonably be expected to check the spread of the fire under prevailing conditions.	1. Direct and indirect line construction. 2. Use of natural and man-made barriers. 3. Burning out 4. Patrol and mop-up of fire perimeter.
1. Wildland fire that threaten life, property or sensitive resources. 2. Wildland fire on Service property with high values to be protected. 3. Observed and/or forecasted extreme fire behavior.	Aggressively suppress the fire using direct or indirect attack methods, holding the fire to the fewest acres burned as possible.	1. Direct or indirect line construction 2. Engine and water use. 3. Aerial retardant 4. Burn out and back fire. 5. Mop-up all or part of the fire area.

B. Conduct all fire management programs in a manner consistent with applicable laws, policies and regulations.

C. Due to the wide-spread land holdings of the District (8 counties, 213 units), local fire agencies (volunteer fire departments) will be utilized for initial attack on wildfires in remote areas of the District. District initial attack equipment and personnel will be distributed to maintain a maximum response time of one hour to fires on Lake Alice NWR and the Sullys Hill NGP during the fire season. Cooperative agreements with local fire agencies will be maintained to provide for cooperative suppression actions and ensure reimbursement is appropriately made. Provide assistance to local or federal cooperators under the "closest resources" and "total mobility" principles in accordance with Service policy.

D. Utilize prescribed fire as a management tool for achieving hazard fuel and resource management objectives. To the greatest extent possible, hazard fuel prescribed fires will be used only when they can compliment resource management objectives. Resource management prescribed fire will be used to accomplish specific objectives established for individual land units.

E. Initiate cost effective fire monitoring which will tell managers if objectives are being met. Monitoring information will also be used to refine burn prescriptions to better achieve objectives.

#### F. Limits to Strategies

1. Limit disturbance to the soil by minimizing mechanical fire breaks to control wildfires and when preparing for prescribed burns.
2. To the greatest extent possible, hazard fuel reduction prescribed burns will be used only when they can compliment resource management objectives.
3. Prescribed burning in areas where threatened, endangered, and candidate species may exist will be conducted utilizing small to medium size burns (10-300 acres) so that the burns can increase local habitat diversity by creating a mosaic of habitats and increased habitat interspersation and edge. Section 7 clearance will be secured, as appropriate.
4. Heavy equipment (dozers, discs, plows, and graders) will not be used for fire suppression except in life threatening situations without the express approval of the Project Leader or his/her designee.
5. The use of prescribed fire to achieve management objectives must be conducted in a cost effective manner.
6. Aerial Retardants and foams will not be used within 300 feet of any waterway as described in the Guidelines for Aerial Delivery of Retardant or Foam near Waterways.

## VI. FIRE MANAGEMENT UNITS

Service policy allows for a wildland fire management program that offers a full range of activities and functions necessary for planning, preparedness, emergency suppression operations, emergency rehabilitation, and prescribed fire operations, including non-activity fuels management to reduce risks to public safety and to restore and sustain ecosystem health.

Consistent with FWS policy all fires will be managed as either wildfires or prescribed fires. Suppression strategies, management restrictions, fuels, fire environment, and values at risk are similar throughout the District. Thus all lands within the District will be managed as a single fire

management unit. Information regarding the District's fire history, fuel types, values at risk, fire behavior, fire effects, and fire weather is discussed in previous sections of this plan.

## **VII. FIRE MANAGEMENT ORGANIZATION AND RESPONSIBILITIES**

The safety of firefighters and the public is the first priority. Persons engaged in fire suppression activities are exposed to a high element of risk. The Refuge Manager and fireline supervisors must make every effort to reduce the exposure to risk and enhance performance. One way is through formal and on-the-job training and improved physical fitness. The Service has adopted the training and fitness standards established in 310-1, and all firefighters must meet these and other standards established by the Service to participate in fire management activities.

Fire Management Team - Wildfire assignments are made on the basis of individual qualifications and position requirements. Principal members of the District fire management organization are the District's permanent staff consisting of the Project Leader, Deputy Project Leader, the refuge operation specialists, maintenance and equipment operators, Fire Management Officer, Prescribed Fire Specialist, Fire Program Technician, and seasonal firefighters.

### **A. Project Leader, Deputy Project Leader, and Fire Management Officer**

1. Responsible for the overall management of the District including the fire program.
2. Insure that Department, Service, and District policies are maintained and followed.
3. Insure sufficient collateral duty firefighters meeting Service standards are available for initial attack.
4. Responsible for insuring the maintenance and readiness of engines and fire equipment cached at Sullys Hill NGP and Lake Alice NWR.
5. Supervise the resource management activities on land management units within the District including the selection of objectives and tools to be used in achieving objectives (including prescribed fire).
6. Responsible for the writing of prescribed burn plans for their respective management units.
7. Responsible for planning, coordinating, and directing preparedness activities including:
  - a. fire training
  - b. physical fitness testing
  - c. fire weather station operation
  - d. fire cache and equipment inventories
  - e. insures step up plan is followed
  - f. coordinates with cooperating fire agencies
  - g. prepares annual FireBase budget request, approves and tracks use of FireBase accounts.
8. Supervises the District fire management staff.
9. Insures fire management policies are observed.
10. Has lead responsibility for managing the prescribed fire program including:
  - a. as available, serves as prescribed burn boss.
  - b. proposes annual hazard fuel reduction and resource management prescribed fire projects.
11. Prepares a District fire prevention plan, and coordinates fire prevention with other

employees.

12. Maintains liaison with Regional Fire Management Coordinator and Zone Fire Management Officer.

13. Updates the Fire Management Plan, maintains fire records, and reviews fire reports for accuracy.

14. Coordinates fire monitoring program to determine if resource management prescribed fires accomplish objectives.

15. Reviews all proposed units to be burned to ensure sound biological principles are being followed, resource management objectives are valid, and sensitive resources are not being negatively impacted.

16. Provide technical/biological support to managers in selecting appropriate resource objectives and the best tool to use in accomplishing selected objectives, to include prescribed fire.

#### B. Seasonal and Collateral Duty Firefighters:

1. Responsible for their personal protective equipment and physical conditioning.
2. Qualify annually on the Pack Test before April 1, or within 2 weeks of EOD date.
3. Maintain assigned fire equipment in ready state and use required safety gear.
4. Assist Supervisors in maintaining accurate records.

#### C. Minimum staffing needs :

Each person may fill one or more of the following positions;

	<u>District</u>
Incident Commander Type 3	1
Incident Commander Type 4	2
Rx burn boss Type 2	2
Rx burn boss Type 3	2
Engine boss	4
Engine operator	5
Ignition specialist	3
Firefighter Type 2	12

#### D. Wildfire Incident Commander (as assigned):

1. The incident commander (IC) will be responsible for the safe and efficient suppression of the assigned wildfire.
2. Fulfill the duties described for the IC in the Fireline Handbook (PMS 410-1).
3. Ensure that personnel are qualified for the job they are doing.
4. Submit information needed to complete DI-1202 (fire report) to the Fire Management Officer within 3 days of the fire being out.

#### E. Prescribed Burn Boss (as assigned):

1. Implement approved prescribed burn plans within prescriptions.
2. Assist with the administration, monitoring, and evaluation of prescribed burns.
3. Document necessary information to complete DI-1202 (fire report) and submit to Fire Management Officer within 3 days of the fire being declared out.

#### F. Fire Cooperators:

1. Provide assistance in suppression of wildfires as defined in cooperative agreements and memorandums of understanding.

### **VIII. WILDFIRE PROGRAM**

#### A. Fire Prevention

Nearly all of the 80 wildfires occurring in the District since 1976 were human caused and thus could have been prevented (see previous section on fire history). Human caused fires have the potential to be the most damaging because they can occur at a time of the year when fewer initial attack resources are available and fuels are cured. The agricultural field and roadside

burning season occurs in spring and fall, and has been the cause of many of these fires.

In general the public and visitors to the District are very aware of fire prevention. As a reminder the District will do the following:

- signing
- closures when necessary
- public contacts through press releases and verbal contacts
- enforcement of regulations and prosecution of violators
- employee training and awareness
- implementation of State regulations and restrictions
- contacts with District cooperators and neighbors

Another fire prevention measure is the annual mowing of unpaved refuge trails on Lake Alice NWR to prevent vehicle use from starting fires.

#### B. Fire Behavior Potential

See previous sections.

#### C. Fire Preparedness

##### 1. General

The District FMO is responsible for coordinating preparedness actions. A Fire Season Readiness Evaluation (Appendix N) will be completed each spring to ensure program readiness. The fire season (wildfire and prescribed fire) will start APRIL 1 and run through OCTOBER 30. The wildfire season as calculated by FireBase analysis is 130 days, 4/1-6/9 and 8/9-10/7.

##### 2. Personnel

Only qualified employees meeting the fitness and training requirements of assigned positions will be dispatched to fires. There may be occasions when unqualified personnel discover a wildland fire. When this occurs, the employee should report the fire and request assistance before taking action to suppress or slow the spread of the fire. If the fire poses an imminent threat to human life, the employee may take appropriate action to protect that life before requesting assistance. The unqualified personnel will be relieved from direct on-line suppression duty or reassigned to non-fireline duty when qualified initial attack forces arrive. The following minimum fire qualification levels will be maintained at the District headquarters.

Devils Lake Wetland Management District:

<u>Position</u>	<u>Number needed</u>	
Incident Commander Type 3		1
Incident Commander Type 4		2
Burn Boss Type 2		1
Burn Boss type 3		2
Ignition Specialist		2
Engine Boss		4
Firefighter (FFT2)	12	

In addition to collateral duty fire personnel, the District needs to maintain a seasonal engine crew during the fire season. Fire crew members will be qualified at the firefighter type 2 level for fire suppression. Fire crew members will be targeted for prescribed burn boss qualification (RXB3) in order to assist in the District's hazard fuel and resource management prescribed fire program.

Additional firefighters may be temporarily positioned at the District, or existing fire crew seasons may be extended using severity or emergency preparedness funding when very high or extreme fire conditions warrant.

### 3. Fitness and Training

Service policy sets training, qualification, and fitness standards for all fire positions. All fire personnel (full time fire or collateral duty) will be provided with the training required to meet Service fire job qualification standards for the jobs they will be expected to perform. Personnel will not perform fire jobs they are not qualified for.

All fire personnel will be required to participate in annual firefighter refresher training to remain qualified. Refreshers will focus on local needs as well as either Standards for Survival or Look Up, Look Down, Look Around Courses, and fire shelter training.

In keeping with Service Policy, a physical examination is required for all new permanent employees and all seasonal employees assigned to arduous duty as fire fighters prior to reporting for duty. A physical examination may be requested for a permanent employee by the supervisor if there is a question about the ability of an employee to safely complete one of the work capacity tests. All permanent employees over 40 years of age who take the Pack or Field Work Capacity Test to qualify for a wildland or prescribed fire position are required to have an annual physical examination before taking the test.

### 4. Equipment

Engines are the primary initial attack resource on the District because of the predominance of fine fuels. Earth moving equipment is available but not recommended for use due to resource damage concerns.

Currently the District maintains the following fire equipment:

- 1 - 1991 4x4 Chevy 1 ton w/200 gallon slip on pumper and radio
- 1 - 1997 4x4 Dodge Type 6 model 52 engine package and radio, GVWR 11,000
- 1 - 1997 4x4 Chevy Type 6 model 52 engine package and radio, GVWR 12,000
- 1 - 2001 4x4 Ford BLM Type 6 engine package and radio, GVWR 12,500
- 1 - 2000 4x4 Chevy ½ ton pick up truck, extend cab
- 1 - 2001 4x4 Ford ¾ ton pick up truck, extend cab
- 1 - 1992 4x4 Chevy 1 ton Truck, Fuel and tow truck, extend cab, GVWR 10,000
- 1 - 2000 John Deere 4610 farm tractor with MX-6 mower
- 1 - ATV towed rotary mower

1 - Grass rake, three wheel, towed behind an ATV  
 1 - 1993 Polaris ATV 6x6 with 69 gallon slip on unit  
 1 - 1997 Polaris ATV 6x6 with 69 gallon slip on unit  
 1 - 2001 Polaris ATV 6x6 with 69 gallon slip on unit  
 1 - 1997 ATV 4x4, Polaris  
 1 - 2001 ATV 4x4, Polaris  
 9 Bendix/King E-series portable VHF radios  
 Fire Cache supports 6 seasonal fire employees 4 permanent fire, and 13 collateral duty employees.

The District could also use a 5 stall heated garage for pumper and equipment storage and maintenance. Due to the start of our fire season before the daily low temperatures are above freezing, our pumpers must sit without water to prevent damage from freezing, lengthening our response time to wildfires considerably. The District tries to keep one pumper full of water and ready to respond by storing it in one of the two refuge maintenance stalls but it frequently interferes with normal refuge operations. Also, due to inadequate storage space our fire equipment is stored in several locations on the refuge making organization difficult.

#### D. Emergency Preparedness

Staffing Class breakpoints were determined using a FIREFAMILY analysis of 10 year fire weather data from a fire weather station at Theodore Roosevelt National Park in Medora, ND (300 miles west of Devils Lake Wetland Management District Headquarters).

#### **Staffing Class      Burning Index Range**

	Fuel Model N (tallgrass)
SC I	0-21
SC II	22-43
SC III	44-88
SC IV	89-109
SC V	110+

The District will use its remote automated weather station with computer software to produce National Fire Danger Rating (NFDRS) calculations. Two years of onsite data (4/93-4/95) will be used to calculate District specific burning index breakpoints. The new breakpoints will be compared to the above breakpoints from Medora, ND and modifications will be made. Until this site specific NFDRS data can be used, the District will follow a Step Up Plan based on the North Dakota Rangeland Fire Danger Index.

#### a. Drought Indicators and Other Impacts on Station Activities

As indicated previously, periods of drought can greatly impact fire behavior and resistance to suppression. For that reason the North Dakota Rangeland Fire Danger Index, Palmer Drought Index, and the Keetch-Byram Drought Index will be monitored at a minimum on a weekly bases throughout the year. All are available on the Internet at <http://ndc.fws.gov>. The Refuge fire staff can also contact the North Dakota Dispatch Center (701-768-2552) during periods of high fire danger to track indices and anticipate possible fire activity. Preparedness actions have been identified in the Step-Up Plan to respond to unusual conditions associated with drought and other factors (See following section).



Large scale fire suppression activities occurring in various parts of the country can have an impact on local fire management activities. For example, resources may be limited to implement prescribed fire activities because the closest available resources may be assigned to fire suppression duties or Refuge personnel may be involved as well. Regional drought conditions may also tie-up local resources that would normally be able to assist with Refuge fire management activities. It may be necessary to go out of Region to get the resources needed to staff the Refuge engine during periods of extreme drought or high fire danger.

The Refuge is in the Northern Rockies Area. During National and Regional Planning Levels IV and V, it is necessary to receive approval from the Regional Fire Management Officer and the concurrence of the Northern Rockies Area Coordination Group to conduct prescribed burns during PL IV and the National Coordination Group during PL V.

#### b. Step-up Plan

The responsible assistant manager will monitor current and predicted fire weather reports and take appropriate actions as listed in the following Fire Step Up Plan.

#### Devils Lake Wetland Management District FIRE STEP UP PLAN

Preparedness Actions	Rangeland Fire Index				
	L	M	H	VH	EX

#### REFUGE STAFF FIREFIGHTERS

Carry PPE while on duty	X	X	X	X	
May be assigned to engine or patrol			X	X	
Tour of duty/schedule may be extended			X	X	

#### FIRE EQUIPMENT

Type 6 engines ready at Sullys Hill NGP*	1	1	1	1	
Type 6 engines ready at Lake Alice NWR	1	1	1	1	
300 gal. tender ready at Sullys Hill NGP	1	1	1		
ATV pumpers ready at Sullys Hill NGP	2	2	2		

#### FIRE PREVENTION ACTIVITIES

Restrict vehicles to paved/gravel roads	X	X			
Post fire danger signs at high public use areas	X	X			

#### MISC EMERGENCY PREPAREDNESS ACTIONS

Preposition FWS and interagency resources	X	X			
Notify RFMC and open emergency suppression account	X	X			
Notify Miles City Dispatch of staffing class and status	X	X			

Step up plan does not apply when refuge resources are assigned

to fires

---

Notes: Ready status is unmanned, but filled with water(except in winter) and ready to respond.

Resources assigned to fires may prevent some staffing actions-FMO and or Team Managers should use common sense in determining whether to fill behind dispatched resources.

L=low, M=medium, H=high, VH=very high, EX=extreme

Once an emergency preparedness account is established/ available the Project Leader or Deputy Project Leader may authorize overtime for Very High or Extreme step up actions that can not be met with regularly scheduled employees. Collateral duty firefighters may be assigned emergency preparedness duties if needed. Backfill behind employees may be authorized.

#### E. Severity and Emergency Presuppression Funding

Severity funding is different from Emergency Presuppression funding. Emergency Presuppression funds are used to fund activities during a short-term weather event and increased human activity that increase the fire danger beyond what is normal. Severity funding is requested to prepare for abnormally extreme fire potential caused by unusual climate or weather event, such as extended drought. Severity funds and emergency presuppression funds may be used to rent or preposition additional initial attack equipment, augment existing fire suppression personnel, and meet other requirement of the Step-up Plan. Emergency Presuppression and Severity funds will be requested in accordance with the guidance provided in the Service's Fire Management Planning Handbook. As a general guide, Severity funding will be requested if a severe drought is indicated by a Palmer Drought Index reading of -4.0 or less or a Keetch-Byram Drought Index of 600 or greater and a long-range forecast calling for below average precipitation and/or above average temperatures. Drought Indices can be located at: <http://www.boi.noaa.gov/fwweb/fwoutlook.htm>

#### F. Detection

The District relies on neighbors, visitors, and cooperators to detect and report fires. In addition, the step up plan provides for increased patrols by refuge personnel during periods of very high to extreme fire danger.

There may be occasions when unqualified personnel discover a wildland fire. When this occurs the employee should report the fire and request assistance before taking action to suppress or slow the spread of the fire. If the fire poses an imminent threat to human life, the employee may take appropriate action to protect that life before requesting assistance. The unqualified personnel will be relieved from direct on-line suppression duty or reassigned to non-fireline duty when qualified initial attack forces arrive.

#### G. Fire Suppression

## 1. General

Devils Lake Wetland Management District is a full suppression area. All suppression efforts will be directed towards safeguarding life and property while protecting the District's resources and external private land and development from harm. The District relies on mutual aid resources to suppress certain wildfires.

Along with other land management agencies, the Service has adopted the National Interagency Incident Management System (NIIMS) Wildland and Prescribed Fire Qualification Subsystem Guide, PMS 310-1 to identify minimum qualification standards for interagency wildland and prescribed fire operations. PMS 310-1 recognizes the ability of cooperating agencies at the local level to jointly define certification and qualification standards for wildland fire suppression. Under that authority, local wildland fire suppression forces will meet the standards established for their agency or department. All personnel participating in prescribed fire management activities must meet Service fitness and training standards.

Mutual aid resources will report to the IC (in person or by radio) and receive their assignment and will be the first priority for release.

## 2. Reporting

All fires occurring within or adjacent to the District will be reported to the appropriate District headquarters. The person receiving the report will be responsible for implementing the Fire Dispatch Plan.

## 3. Initial Attack

All fires on the District staffed by FWS employees will be supervised by a qualified Incident Commander (IC). In the event a qualified IC is not available, one will be ordered. In keeping with the principles of ICS, the most qualified firefighter will assume command until relieved. The IC will select the appropriate suppression strategies and tactics and is responsible for all aspects of the management of the fire, including:

- G Providing a size-up of the fire to dispatch as soon as possible.
- G Using guidance found in the fire Management Plan or in the Delegation of Authority, determine the strategy and tactics to be used.
- G Determine the resources needed for the fire.
- G Brief assigned resources on the strategy and tactics to be used, expected fire behavior, historic weather and fire behavior patterns, impacts of drought, live fuel moisture, escape routes and safety zones, and radio frequencies to be used.
- G Advising dispatch of resource needs on the fire.
- G Managing all aspects of the incident until relieved or the fire is suppressed

Minimum impact tactics will be used whenever possible. Dozers, plows, discs, or graders will not be used inside the District boundaries for fire suppression without permission from the Project Leader or his/her designee.

#### 4. Escaped Fires/Extended Attack

The IC will notify the District FMO whenever it appears a fire will escape initial attack efforts, escape Service lands, or when fire complexity will exceed the existing capabilities. The District FMO will be responsible for coordinating extended attack actions including:

- Completion of Wildland Fire Situation Analysis (WFSa) for the Project Leader.
- Assignment or ordering of appropriate resources.
- Completion of Delegation of Authority if needed.

#### H. Mop up Standards and Emergency Stabilization and Rehabilitation

The IC will be responsible for mop-up and mitigation of suppression actions taken on Refuge fires. The mop-up standards established in the Fireline Handbook will be followed. Refuge fires will be patrolled or monitored until declared out.

Prior to releasing all firefighters from a wildland fire the following actions will be taken:

- G All trash will be removed.
- G Firelines will be refilled and waterbars added if needed.
- G Hazardous trees and snags cut and the stumps cut flush.
- G Disked firelines should be compacted as soon as possible to preserve the living root stock of natives grasses.
- G Overturned sod resulting from plowing must be rolled back with a grader or by hand and compacted to preserve native grass root stock.

Other emergency stabilization and emergency rehabilitation measures may be taken in accordance with Chapter 5 of the Fire Management Handbook. Briefly:

- G **Emergency stabilization** is the use of appropriate emergency stabilization techniques in order to protect public safety and stabilize and prevent further degradation of cultural and natural resources in the perimeter of the burned area and downstream impact areas from erosion and invasion of undesirable species. The Incident Commander may initiate Emergency Stabilization actions before the fire is demobilized, as delegated by the Agency Administrator, but completing emergency stabilization activities may be completed after the fire is declared out.
- G **Rehabilitation** is the use of appropriate rehabilitation techniques to improve natural resources as stipulated in approved refuge management plans and the repair or replacement of minor facilities damaged by the fire. Total "rehabilitation" of a burned area is not within the scope of the Emergency Rehabilitation funding. Emergency Rehabilitation funding can be used to begin the rehabilitation process if other funding is committed to continue the rehabilitation throughout the life of the project (beyond the initial 3 years of Emergency Rehabilitation funding). Major facilities are repaired or replaced through supplemental appropriations of other funding.
- G Because of the emergency nature of the fire event, the emergency stabilization section of the **Emergency Stabilization and**

**Rehabilitation Plan (ESR Plan)** must be developed expeditiously and is frequently developed by a local unit or designated burned area ESR team. The rehabilitation section of the ESR Plan is not considered an emergency, and is developed as other refuge land use plans. The refuge manager is responsible for preparing all ESR Plans. In order to be funded, ESR Plans must meet resource management objectives and be approved by the Project Leader and the Regional Director.

#### I. Records and Reports

The IC will complete all situation reports as soon as practical. The IC will complete DI-1202 fire reports within 3 days and will ensure that all expenses and/or items lost on the fire are reported, that the timekeeper is advised of all fire time and premium pay to be charged to the fire, and that expended supplies are replaced.

## **IX. PRESCRIBED FIRE MANAGEMENT**

The District has been using prescribed fire as a management tool since 1981. From 1981-1995, 21,882 acres have been prescribed burned during 105 burns. Average burn size is 208 acres. The District uses prescribed fire as a tool in 2 management areas: resource management and hazard fuels reduction (both are dependent on funding).

### **A. Resource Management Prescribed Fire**

Resource management prescribed fire is used to restore/create/maintain a healthy diversity of plant communities of vigorous grassland stands in order to restore and perpetuate native wildlife species with a emphasis on ground nesting migratory birds, over water nesting birds, and resident game birds. Goals of resource management burns include:

- restoration of native prairie grass species
- reduction/control of exotic grasses, especially Kentucky bluegrass
- control of woody species invasion of grasslands and wetlands
- aid in control of noxious weeds particularly leafy spurge, Canada and musk thistle.
- control of dense cattail growth in shallow wetlands
- maintain/rejuvenate quality nesting cover for waterfowl and other migratory birds

Achieving many of the above goals requires repeated prescribed burns over a 12-15 year period with a 3-5 year burn frequency.

Program Objectives: Treat approximately 3,000 acres per year in order to accomplish resource management goals on 15-25 land management units (assuming current level of funding). At the current level of funding the prescribed fire program cannot come close to treating all the units in need of fire management. This is primarily due to limited staffing. The District has the necessary equipment to field two separate prescribed burn crews on a single day but there is not adequate staff. Given more staff, the District could almost double the number of prescribed burns. Therefore the Fire Management Plan proposes the addition of 1.5 FTE's (3 seasonal employees) and 1.0 FTE (one career seasonal/term/permanent station fire management officer) in order to burn 4,000 acres per year on 30-40 land management units; this includes monitoring.

### **B. Hazard Fuels Reduction Prescribed Fire**

The District hazard fuel reduction program uses prescribed fire within or near District development zones, wildfire sensitive resources, and specific WPA and refuge boundary areas to reduce the risk from wildfire damage. WPA and boundary zones burn units are selected based on values at risk on adjacent land, probability for escape from FWS land, and fuels. Fuels in hazard fuel sites have 6-10 inches of accumulated litter and/or high densities of shrubs. The large volume of litter and shrub component causes complex control problems during suppression actions. High litter loadings allow wildfires to carry even during full green-up conditions. To the greatest extent possible, hazard fuel burns will only be used when they can compliment resource management objectives.

Goals of Hazard Fuel Burns include:

- reduce dead fuel loadings (litter) of 2-3 tons per acre by approximately 75% or better
- reduce woody shrub component by 50%

Hazard fuel prescribed fire program objectives are:

- treat approximately 2,000 acres per year
- burn units once every 5-8 years depending on fuel accumulations and resource management considerations

### C. Planning

The assistant managers (ROS) are responsible for supervising the development of resource management objectives for individual units in their areas of responsibility. Their supervisors will provide assistance in selection of the appropriate management tool needed to meet the objectives. Prescribed fire is just one of a combination of tools available. If needed, the Zone FMO or regional prescribed fire specialist will be consulted for assistance in accomplishing the desired objectives. The burn plan will document objectives and the plan of action for achieving them. Burn plans can be written by any qualified burn boss.

Potential burn units will be selected and a draft list will be reviewed for sound biological practices by the Deputy Project Leader. A review of the previous years prescribed fire accomplishments, failures, and any monitoring results will also take place at this time. Burn plans will be submitted for review to the Zone FMO and approval by the Regional Office at least 60 days prior to the planned burn day.

All burn plans will address **contingency planning** for all prescribed burns. General contingency planning elements are listed in the following paragraph. More specific information regarding contingency planning may be included in a particular prescribed burn plan if the need exists.

The contingency section will be included in all prescribed burn plans and shall address the following essential elements:

- G Trigger points that are clearly defined;
- G Instructions for reporting an escaped fire or slop-over;
- G Who has the authority to activate the contingency plan;
- G The initial actions to be taken to suppress the wildland fire (Included in this section will be the organizational structure, strategies, tactics, additional resources, health and safety concerns.);
- G Who is to be notified when the contingency actions are implemented;
- G The location of values or resources requiring protection and established priority for providing protection;
- G Containment opportunities outside of the burn unit (i.e. fuel breaks, roads, and other areas).

Determining when to implement the contingency plan or declare a prescribed fire a wildfire will vary with every situation. Therefore, clearly defined trigger points that indicate when the contingency plan will be implemented and under what circumstances the prescribed fire will be declared a wildfire will be identified in each prescribed burn plan. The following are examples of trigger points that may be used:

- G When three or more slop-overs occur within a 30 minute period or when an escape exceeds the ability of the holding forces to

- suppress it in a timely manner.
- G When private property, cultural resources, structures and other resource values are threatened.

The fire staff will be responsible for preparing all fire equipment used for prescribed burning prior to April 1. Prescribed burn units may require preparation including; mowlines, disclines, blackline, and public relations. Preparation for burns will be handled on an individual basis and will be identified in the prescribed burn plan for that unit. The Deputy Project Leader will prioritize the units to be burned on a District-wide basis.

The normal prescribed burn season begins approximately April 1 depending on snowmelt. The season continues until late fall, approximately October 30. Most units are not burned between May 30 and August 1 in order to avoid burning nests. When a particular unit is burned depends on burn objectives. Some burning will occur during the winter depending on snow conditions. Winter burns are generally for cattail control in wetlands and for burning blacklines to be used as control lines for future burn units.

Each prescribed burn unit requires an open burning permit from the North Dakota Department of Environmental Health. Procedures for obtaining permits can be found in section III. M and Appendix H. of this plan. Devils Lake Wetland Management District is within the Northern Rockies Interagency Fire Coordination Area. Prescribed fires cannot be ignited when the Northern Rockies Area is in fire danger preparedness level V and/or the National Preparedness level is V without concurrence of the Northern Rockies Coordination Group. Multiple units may be burned at the same time within the District. The maximum number of simultaneous burns will depend on the cumulative impacts of smoke on sensitive targets. The Zone FMO or other qualified Prescribed Fire Manager will be available to coordinate the management of simultaneous burns. It is not required that the Prescribed Fire Manager be on-site during the burns. Sufficient suppression forces must be available for each burn in the event of an escape.

For the past several years the District has assisted with prescribed burning with the North Dakota Game and Fish Department and the University of North Dakota, located in Grand Forks, North Dakota. These activities are covered under a Cooperative Agreement which addresses prescribed fire specifically.

#### D. Training

The District will at minimum meet policy requirements of the Service prescribed fire qualification system. The Project Leader will be responsible for ensuring District personnel maintain qualifications necessary to implement the fire program. The District will maintain a minimum of two staff members qualified at the prescribed burn boss three (RXB3) and two at the RXB2 level. Additional training will be obtained for District resource managers in the area of fire effects and monitoring in prairie ecosystems in order to implement emerging Service ecosystem management strategies.

#### E. Complexity

The majority of the prescribed burns conducted in the District fall within the low complexity category as determined by the FWS Region 6 Complexity Analysis Guidelines. The average number of personnel required to conduct a burn on the District is 6-9. Most burns are structured



with a burn boss, 5-8 prescribed fire crew members.

## F. Monitoring and Evaluation

Current monitoring and evaluation of prescribed burns is very limited due to funding and staffing limitations. Burn prescriptions and timing are based on past research (Higgins, Smith, Kruse, Kirsch, and others). Pre burn evaluation is limited to photo points or general photos, qualitative evaluation of fuel conditions and green up conditions. Burn day evaluations document temperature, relative humidity, windspeed, fine fuel moisture, rate of spread, flamelength, smoke dispersal, % litter reduction, and % scorch of woody species. Post burn evaluation is limited to photo points or general burn photos, and qualitative estimates of shrubs, and noxious weed abundance and cover, and native species response.

Fire monitoring protocols for the Region or Service will be adopted by the District when they are finalized. If the resource management prescribed fire program proposed by this Fire Management Plan is fully funded, a more quantitative monitoring program will be implemented. The FTE increase proposed in this plan will be used to establish vegetative transects in one each of the habitat types being prescribed burned. Species composition and % cover will be the primary information used to determine if burn objectives are being met and to monitor long term vegetation responses.

## G. Prescribed Fire Impacts

1. Environmental impacts of the prescribed fire program are discussed in previous sections of this Fire Management Plan.
2. Values at risk are discussed in detail in section K. Improvements.
3. Fuels on service land and surrounding private land are described in section N. subsection 1. Fuel types.

Social and economic impacts are discussed in this section. The District covers an eight county area and contains only one of the state's larger metropolitan areas. There are numerous small towns and communities within the District and the city of Grand Forks with a population of 60,000. The main industry in the area is agriculture, and the majority of other industry is agriculture related.

The overall social and economic environment can be affected by how the habitats on the District are managed. Often the effect is local, but when all District land units are combined, the effect is more widespread. Habitat management is often accomplished by authorizing local farmers to hay or graze on WMD and Refuge units. This is viewed as positive both socially and economically. Local farmers and ranchers prefer to hay or graze lands on the District rather than seeing them "go up in smoke".

The majority of neighbors accept the fact that the Federal government owns land for waterfowl and migratory bird production, and most have a general appreciation for the value of wildlife. However, these neighbors expect the land to be managed for wildlife and not ignored. If District lands are ignored, allowing the habitat condition to decline in quality and noxious weeds to increase, opinions quickly become negative. If the land is managed for the best interest of wildlife and habitat conditions are maintained, these opinions become positive and wildlife benefits both on and off Service managed lands.

Prescribed fire is one of the tools necessary to manage District lands.

The majority of recreational uses on the District are centered around hunting and bird watching. Many of the Districts lands offer some of the best waterfowl hunting and birding in the nation. Hunters and birders come from all over the United States to visit the area, and the District is considered one of the best birding areas in the region. Annual visitation is estimated at 100,000 people per year. Occasionally hunters and birders may comment negatively when they see black, burned areas, but in general most of these people understand the need to utilize fire on the District after a short discussion with refuge staff. Negative impacts to the local economy could result if habitat becomes less productive and wildlife populations decrease. The number of hunters and birders traveling to the area could decrease, depriving the local economy of recreation dollars. As shown in this plan, increased use of prescribed fire will increase wildlife populations, thus providing an economic benefit to the area.

Escaped prescribed fires pose a threat to adjacent life and property, but proper planning and prescriptions, qualified personnel, and contingency planning can mitigate this threat. Temporary air quality impacts from smoke may occur, but are generally mitigated by the fuel type (light flashy fuels), small burn unit size, and adherence to prescription parameters.

#### H. Reporting and Documentation

Individual prescribed burn plans will be the primary document used to record prescribed fire information. Burn plans document state air quality requirements, personnel, costs, fire behavior, weather, and burn critique information. Prescribed burns will also be documented on DI-1202 forms and submitted to the FMO within 3 days.

### **X. WILDLAND FIRE USE FOR RESOURCE BENEFIT**

The District has elected not to consider resource benefit when selecting the appropriate management response for the following reasons:

- rapid rates of spread in predominant grass fuels would create high probability of escape to private land
- conflicting land uses within the District; haying and grazing
- small size of FWS land units creates high probability of escape to private land

### **XI. AIR QUALITY**

See previous section III. L.

### **XII. FIRE RESEARCH AND MONITORING**

The District will continue to encourage fire related research projects on FWS lands where

research operations will not conflict with unit management objectives. At present there are no specific issues which the District staff feel need research. Fire monitoring is discussed in previous sections of this plan, see section IX. F.

### **XIII. PUBLIC SAFETY**

Firefighter and public safety will always take precedence over property and resource protection during any fire management activity. Firefighter safety is covered in section VIII. G. This section will deal with public safety.

Fire fronts in grass fuels are fast moving and dangerous. However due to the small size of most District units, entrapment is not a big threat to sportsmen/visitors who may be in the area. Neighbors who initiate their own suppression actions lack proper training, equipment, and communications and may be at risk. The District staff will attempt to keep the fire scene (wildfire and prescribed fire) clear of people except for FWS firefighters and cooperating volunteer fire departments. Burn areas are usually closed to the public during prescribed fires.

Smoke from a wildfire or prescribed burn could impair visibility on roads and become a hazard. During wildfires the law enforcement agency having jurisdiction is responsible for managing traffic hazards from smoke. Smoke from prescribed fires is part of the burn prescription and is the responsibility of the burn boss. Actions to manage smoke include: use of road guards and pilot car, signing, altering ignition techniques and sequence, halting ignition, and suppressing the fire.

Wildfires which might escape from FWS lands and spread to inhabited private property are also a concern. The local law enforcement agency having jurisdiction will maintain order at the scene and enforce evacuation orders. Service personnel may assist with the evacuation process in cooperation with the law enforcement officer in charge. Additionally the District will continue where practical to use prescribed fire to manage hazard fuels in high risk areas.

### **XIV. PUBLIC INFORMATION AND EDUCATION**

Informing the public is an important part of fire suppression, fire prevention, prescribed fire, and the FWS mission. During wildfires the IC is responsible for providing fire information to the press and the public. The IC may delegate this task as needed.

Informing the public is a vital element of the prescribed fire program. The following actions will be used to promote the prescribed fire program to the public:

- press releases
- attendance at local volunteer fire department meetings
- including the prescribed fire message in District interpretive publications and materials
- personal contact with bystanders during prescribed burns
- following prescribed burn plans and preventing escapes
- developing a quantitative fire effects monitoring program and sharing results with the public

## **XV. ARCHAEOLOGICAL/CULTURAL/HISTORIC RESOURCES**

See previous section III. J.

## **XVI. FIRE CRITIQUES AND PLAN REVIEW**

The Fire Management Plan will be reviewed annually (no later than November 30) to ensure the fire program advances and evolves with the FWS and the District's mission.

Wildfires will be critiqued by the IC. The Zone FMO will conduct formal fire critiques in the event of:

- significant injury/accident
- significant property or resource damage
- significant safety concerns are raised
- an extended attack is necessary

Prescribed fires will be critiqued by the burn boss and documented in the burn plan. The Zone FMO will conduct a formal critique if:

- significant injury/accident
- an escape prescribed fire occurs
- significant safety concerns are voiced
- smoke management problems occur

## **XVII. CONSULTATION AND COORDINATION**

All fire management program activities will be implemented in cooperation and coordination with the State of North Dakota, North Dakota Department of Environmental Health, and rural fire protection districts. Other agencies and organizations will be consulted with as needed.

General program consultation and coordination will be sought from the North Dakota Refuges FMO, the Regional Fire Management Coordinator, Regional Prescribed Fire Specialist, and the National Interagency Fire Center (NIFC).